Handbook of
Disaster Research

Handbooks of Sociology and Social Research

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Foreword

In case we needed any additional reminders, recent disasters, such as the 2004 Sumatra earthquake, the Indian Ocean tsunami, and the series of 2005 disasters, including Hurricanes' Katrina and Rita, the Pakistan earthquake, and the Central America floods once again demonstrate that we live in a very hazardous world. They also indicate that human societies worldwide have much to learn about the actions to take and to avoid in order to reduce the likelihood that hazardous conditions will result in disasters. In addition, these events make clear that hazards in both developed and developing countries can result in disasters of catastrophic proportions, as was the case with the Sumatra earthquake and the Indian Ocean tsunami, which led to hundreds of thousands of deaths in several developing countries in the region, and Hurricane Katrina, which was the costliest natural disaster in U.S. history.

These recent disasters, and the hazardous conditions that provided the context for them, are also further reminders of the importance of social science hazards and disaster research for extending our understanding on how human society copes with risks and actual events when they occur. It is important that social scientists from all relevant disciplines continue to systematically gather such knowledge on the full range of natural, technological, and human-induced disasters using the best methodologies and guided by the most robust theories and models. Topics related to mitigation, preparedness, response, and recovery should be at the forefront of these social science investigations to not only produce knowledge that is of interest to the research community but also to provide the basis for science-based decision making by planners, emergency managers, and other practicing professionals. A significant start has already been made by the social science community in investigating the Sumatra earthquake and the Indian Ocean tsunami, Hurricanes Katrina and Rita, and other recent disasters, promising needed new understanding on the impact of hazards and disasters on human society.

In recognition of the global reach of hazards and disasters and the fact that an international social science disaster research network has emerged to sort out the complexities and challenges involved in such risks, scholars from around the world contributed to the *Handbook of Disaster Research*. Also, many of the social science disciplines are represented among the contributors, reflecting both the breadth of subjects covered in the *Handbook* as well as the fact that various disciplinary perspectives are required to advance knowledge in the field. In addition, given the needed linkage between the social science disaster research community and practitioners in the field, it is appropriate that several practicing professionals are among the authors of the volume.

Representing the rich tapestry of the field, then, this diverse group of experts has not unexpectedly produced a document with much subject-matter variety, touching on important theoretical, empirical, and applied issues that are related to both the challenges of today and

those anticipated in the future. Thus, collectively, the contributions to the *Handbook* provide a benchmark for current social science hazards and disaster research and applications and a vision for where the field should be in the future. This approach is welcomed because of how much remains to be learned regarding the relationship between human society and hazards and disasters as well as about how to further the effective application of existing knowledge given the continuing vulnerability of communities in developed and developing countries alike. With contributions from outstanding scholars and professionals and edited by three of the most prominent leaders in the field, this book is a major addition to the literature in the field of social science hazards and disaster research and applications.

William A. Anderson
National Research Council
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Foreword

Since the attacks of September 11, 2001, my office has been actively working to develop legislation to help communities better protect themselves from future disasters. While much has been said and money invested in meeting the technological challenges associated with disasters, very little public attention has been given to the complex social dynamics around them. The *Handbook of Disaster Research* strikes a fitting balance in discussing our nation's need for technology and the efficiency it brings, with the importance of preserving and enhancing the social capital inevitably created in the wake of critical incidents.

Disasters are in fact as much a social event as they are a physical one. Our day-to-day routines are suddenly and violently broken, the social confinements of our culturally defined roles are shattered, and social capital rises as self-organizing social networks emerge. These networks are bands of citizens, who would normally be socially disconnected, coming together for the common pro-social purposes of facing adversity as a group and working to bring back a sense of normalcy to their environment.

As unwanted as disasters are, they do provide unique opportunities for societies to mend their frayed and neglected social fabric, as well as reaffirming a community's collective sense of values. By taking advantage of the spontaneous formation of social networks, and allowing these networks to have responsibilities in disaster response and recovery efforts, we can draw strength from one another while developing meaning from the issues at stake.

When it comes to dealing with disasters there is neither a Republican way nor a Democratic way; there is only the right way. The science is out there and it is incumbent upon us, particularly in government, to learn it. As a member of the United States Congress, I am grateful to Drs. Russell Dynes, Henry Quarantelli, and Havidán Rodríguez, their colleagues, and other distinguished contributors for providing a comprehensive analysis of the research on various disaster-related topics. Only by furthering our knowledge of disasters can policymakers craft legislation that sensibly brings science to service.

Patrick J. Kennedy
Member of Congress

Foreword

Every emergency reaffirms our limited understanding of hazard management—prevention, reduction, preparedness, and response; the need for systematic social science research has never been greater. From a comparative international perspective, we need to identify those factors that exist in the physical world and the social environment that lead to potentially disastrous situations. To achieve this, disasters must be interpreted not so much as problems in themselves, but as a result of other problems in the socioeconomic and ecological context. Globally, insufficient attention is being paid to disaster preparedness and response and to the social context and social factors that impact disasters. Thus, it is necessary to redress the balance between investment in research in the physical sciences and investment in the social sciences. The all-important social factors that contribute to disaster vulnerability, the definition of disaster, and response to emergencies, unfortunately, have been undervalued.

Whether knowledge gained of human behavior in more developed countries is pertinent to the explanation of disaster phenomena in developing nations becomes less critical with the ongoing effects of globalization. Indeed, it would seem that the evidence indicates that cross-cultural similarities in disaster behavior may be greater than the differences. The editors of this handbook have encouraged their contributors to think in cross-cultural and international terms. Given that encouragement, global programs, such as those supported by UNICEF, which operate around the world with the aim to benefit the most vulnerable, can also benefit from this knowledge.

Everett Ressler
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Editors' Introduction

Disasters create difficulties, even for those who study disasters. Much of that difficulty stems from the necessity to deal with concepts, which have popular meanings, and some of those meanings evoke moral and emotional reactions. Conceptual discussions about disaster related activities could evoke charges that researchers miss the point. Also, interest in disasters cuts across disciplinary lines so that one's own disciplinary interests are considered critical while the interests of others are interesting but marginal.

Quarantelli (2005) has recently described the social context in which the social scientific study of disaster has emerged, most of which is barely half a century old. He described the first sociological efforts to study disaster and how the Cold War, after World War II, began to raise questions about how American communities might react to enemy attacks. The larger social context prompted the initial efforts to look at peacetime disasters and indirectly led to the support of the Disaster Research Center. The idea of the Disaster Research Center and, subsequently, what came to be known as DRC, was independently created by sociologists at The Ohio State University.

The outline of this *Handbook* and the topics selected for attention draw heavily from the perspective of the DRC. This is less because the editors are from DRC, but more from the fact that much of the earliest social science disaster research was done at DRC. Some attention to disasters had of course preceded the Center's existence, ranging from Prince's doctoral dissertation (1920) on social change and disasters to Sorokin's theoretical treatise (1942) to the first systematic field studies undertaken by the National Opinion Research Center (1949–1954) to the series of studies done at the National Academy of Sciences (1952–1960). However, for about two decades after those works, DRC undertook the only continuous and systematic research in the area, and produced the bulk of the publications that were written. Thus, the early history of disaster studies is to a large extent the history of DRC and its early graduates.

As background, the book *Organized Behavior in Disaster* (Dynes, 1970) provides a description of the early work of the DRC and a review of prior disaster research. That review noted that there were four common usages of "disaster": as an agent description, such as a hurricane, an explosion, a flood and, more recently, a terrorist attack; as physical damage, in terms of both structures and people; as social disruption, creating a series of problems for communities and nations; and finally, perhaps the most common usage, as negative evaluation, describing situations and people as being confused, bad, as well as unlucky, and any other combination of these evaluations possible. In many discussions, different meanings can occur interchangeably within the same sentence. For our purposes here, the central meaning of disaster is social disruption.

Organized Behavior in Disaster was based on the literature available at that time. Of course, some literature was of greater value than others. It was noted then that there were three types of existing literature: (1) popular, (2) official, and (3) professional and scientific, which we summarize below.

POPULAR LITERATURE

It is perhaps legitimate to term media presentations as "literature." It can be recorded, re-run, and archived. With the advent of cable TV, with hours to fill with visual content, disaster film becomes staple content; both heroes and victims can be incorporated into the story. The best shots are of the physical damage and asking victims whether they have received help and how they feel. The major program themes center on the physical destruction, victimization, and lack of assistance, with the intent of portraying a state of "chaos or anarchy" following the disaster.

These same themes are also central to the motion pictures version of disaster, except movies can provide a more coherent story and better visual effects. There is also a literature on survivors and eyewitnesses to major disasters in the past. While none of these sources provide much useful information about disaster behavior per se, their activity and participation in disaster occasions are worthy of examination (see the chapters by Webb and by Scanlon in this volume).

OFFICIAL LITERATURE

Official documents of governmental and quasi-governmental agencies, security agencies, and nonprofit assistance agencies include reports often filled with descriptive statistics and descriptions of their involvement in various phases of disasters. Often, such reports can be considered to be a form of "public relations;" efforts to justify past activities and to convince themselves and others as to their value in the past and their need in the future. Government documents often provide valuable information not necessarily about the disaster occasion but about the political stand and dynamics concerning disasters at a particular time period.

PROFESSIONAL AND SCIENTIFIC LITERATURE

Most of the sources quoted throughout the various contributions in this *Handbook* would fall into this category. While there is a tradition within the physical and biological sciences as well as various engineering disciplines to study disaster agents and to understand physical damage, the concern here will be with the social sciences. In the research reviewed in *Organized Behavior in Disaster*, it was noted that almost all previous research had been opportunistic, in the sense that, given their proximity to a particular crisis event, social scientists realized that such events provided a unique research opportunity. Therefore, they hurriedly developed research plans and assembled research teams that were convenient but not necessarily competent. At times, such contrived studies made creative contributions but often were duplicative and explored unproductive leads. A potential solution for that problem was suggested in the final pages of

Organized Behavior in Disasters and it provides the starting point for the contributions that are included in the *Handbook of Disaster Research*.

The *Handbook* suggests a new approach, which might overcome the research limitations of earlier research. The previous approach was conditioned not only by the review of the previous literature but also by the focus on ongoing activities at DRC. The Center was initiated in 1963 at the Ohio State University with an initial and primary focus on organizations and on the emergency period, which had been neglected in large part because of the logistical and financial problems of organizing quick response research. It continued to be difficult to convince research funders that the Center did not know when and where we were going to do research; although we could certainly study the events, we could not necessarily predict where and when they would happen. Our first major field trip was in 1963 in the United States as the result of a propane explosion during the Ice Show at the Indiana State Fair Coliseum. Given the high death and injury rates, this event provided the opportunity to look at the "processing" of victims by rescue and medical organizations. It occurred at the same time that another DRC field team was in Italy where a landslide produced a dam overflow and created severe damage to the village at the bottom of the dam. These events provided the opportunity to contrast different national disaster systems. Also, several months after the founding of the Center, a major earthquake occurred in Alaska, affecting the largest city, Anchorage, as well as several native villages. The size of Anchorage and the research efforts of various DRC field teams allowed us to understand the patterns of response for a variety of municipal and state agencies. Several months later, an earthquake of similar intensity affected Niigata, Japan allowing us to contrast Japanese and U.S. response to a disaster agent of similar intensity. Thus, our review of the earlier disaster literature was not a review in the conventional sense, but looked at previous research in the context of our own ongoing fieldwork. Some of the authors in this handbook were part of that collective process.

At the end of our review in *Organized Behavior in Disasters*, a series of ideas were put forth for future research on disasters, as indicated in the following section.

1. A research organization must be developed that has, on standby, experienced field teams that can be mobilized immediately given that new researchers are often preoccupied with the novelty of the situation and find it difficult to sort out the unique from the novel.
2. Future research should be centered on macro rather than micro levels. This is certainly a reflection of the disciplinary "bias" of the founders of the Center and the subsequent directors. But it was also a warning of a cultural bias in American society, which tends to reduce all explanations to the individual level, isolated from any social context.
3. Research must become comparative in the fullest sense. Three types of comparisons were recommended—among crisis events, organizations, and sociocultural systems.

It is useful to comment on some of the ways that those initial recommendations have been implemented. The DRC has maintained field team capabilities since 1963, both at the Ohio State University and when it moved to the University of Delaware in 1985. The primary focus is still on organizations but the research interests have expanded to include research on mitigation, preparedness, and recovery. The focus on comparisons among crises events continues. The more than 650 different field trips taken over that time include the full range of possible disaster occasions.

The effort to look at disasters in different sociocultural systems has taken a number of different forms. One of the first initiatives of the Center was to make contact with English,

French, and Dutch researchers as well as notifying international agencies in Geneva, such as the United Nations and the League of Red Cross Societies of our research plans. There were other strategies used to increase the interest and effort among disaster researchers in other parts of the world. Central to that effort was the development of workshops for researchers in specific countries or regions. This was done with Japanese social scientists in Ohio; with Italian researchers in Delaware and in Italy; with South Asian researchers at the Asian Disaster Preparedness Center in Thailand; with Central American and Caribbean researchers in Costa Rica; with Russian researchers in Moscow; and with Indian researchers in Patna, Bihar. International contacts were enhanced by the participation of various DRC staff members at research workshops in more than 25 countries. These contacts were furthered by the creation of a research committee on disasters in the structure of the International Sociological Association and the creation of the *International Journal of Mass Emergencies and Disasters*. That organizational location did not preclude nonsociologists from participation. The growth of this international network prompted a number of researchers to come to the Center for extended stays on Fulbright and Winston Churchill fellowships, on various government-funded fellowships, and on sabbatical leave from academic institutions; many more have come on shorter visits.

Perhaps the most inclusive example of cooperative activity occurred in the 1985 Mexico City Earthquake. Soon after the earthquake, a researcher from the Instituto de Investigación de la Comunicación, a survey research center in Mexico City, arrived looking to develop research questions regarding the earthquake response for their regularly scheduled survey of the Mexico City population. A second visitor from the Secretaría de Gobernación, which had been given expanded responsibility in the post-earthquake period, came to the Center to discuss disaster issues. This resulted in one of the directors going to Mexico City to talk with the Secretaría staff. As a result of these visits, DRC initiated a joint research project with the Institute to do another survey on the first anniversary of the earthquake and developed another project with La Facultad Latinoamericana de Ciencias Sociales (FLACSO) to study the organizational response of the municipal government. In this part of the project, the two groups jointly developed the research strategies and DRC personnel went to Mexico City to train interviewers in DRC field research operations. Certainly, that effort was an optimum situation in collaborative research and it suggests that, at times, it is possible. To this day, DRC continues to engage in international research on disasters and to collaborate with international researchers in the field.

While we have included some comparative research efforts in this volume and encouraged our contributors to make an effort to seek it out in their own analysis, we recognize that it is easier to deal with materials that are culturally familiar. We are aware, however, of very significant research activities in Australia and Japan as well as programmatic work at the Asian Disaster Preparedness Center at the Asian Institute of Technology in Thailand dealing with disaster planning in large Asian cities. There is a growing group of researchers centering around El Centro de Investigación y Estudios Superiores en Antropología Social in Mexico and a network of researchers in Latin America called LA RED. Also, there has been a disaster research tradition in England, The Netherlands, France, Spain, Germany and Italy. In those countries, there has been a continuing focus on floods, which has been an enduring problem, and there has been an emphasis on disasters in developing countries. In Sweden, there has been important work on risk with comparative studies of different emergency response systems in the Baltic States. A disaster research tradition has also emerged in Russia and in several Eastern European nations, especially the Czech Republic. To the editors, these developments are gratifying and we recognize that we have not fully represented the importance of those contributions here. It is noteworthy that the importance of comparative

research is not just to take into account differences in response to disaster, but also to emphasize the similarities as well as the creative solutions, which can be identified around the world.

In addition to the value of comparative studies, research on disasters has come from a variety of disciplines and areas of study, including Geography, Psychology, Economics, Political Science, Communications, Operations Research, Decision Theory, Public Administration, Anthropology, and others that are somewhat difficult to classify by discipline. Two research traditions deserve special notation. Natural hazards research generally uses a human ecological perspective dealing with the interaction of human and nonhuman factors in relation to risk. Gilbert White is generally credited with initiating research on hazards with his 1942 dissertation on human adjustment to floods. In 1976, he became the Director of the Natural Hazards Research and Applications Center at the University of Colorado, which over the years has become an important location for sharing information focusing on the mitigation of natural disasters. Another research tradition, which developed more recently, has been risk analysis. Drawing from a number of disciplines, it has been concerned with the identification, measurement, and evaluation of risk. Such research has been the basis for the creation of occupational titles such as risk managers and risk analysts. More central to our concerns here is the notion that risk is socially defined (for more details on the scope and origins of the natural hazards and risk traditions, see Kirby 1990.)

The *Handbook of Disaster Research* focuses on disasters as social phenomena. While there are occasional references in different chapters to hazards as physical phenomena and their possible relationship to disasters, the hazard perspective is not very explicitly or at length addressed in most of this work. As some scholars have noted (Alexander 2000; Mitchell 1990) the field of hazards studies had an origin separate from disaster research, often studied different topics, and has used different theoretical frameworks. Of course, some hazard scholars, such as Gilbert White, have contributed to both fields of studies.

POPULAR IMAGES OF DISASTER BEHAVIOR

In our earlier review of the disaster literature, while our goal was to develop ways to study the functioning of organizations in emergencies, we continued to be amazed as to the popular images of what happens to individuals, organizations, and communities as compared with the picture obtained from reading the research literature. In fact, Quarantelli and Dynes (1972) wrote an article, published in the popular social science journal *Psychology Today,* that contrasted the mass cultural view of disaster behavior with research evidence. For most individuals, disaster experience is so rare that most of our "knowledge" comes from stories and pictures from the mass culture, and now, with cable television in many countries, those images are available 24 hours a day. Those who produce such images use their own vision of what should be pictured. Those persistent images, however, are not necessarily a reality but assume what problems disasters create and what needs to be done.

It is useful to contrast two sets of images, one drawn from the mass culture—that of confused victims—and another that fits the research literature much better—that of active survivors. These images have to be placed in the context that, after the disaster impact, there is the "conviction" that disasters create social chaos. This "chaos" is signaled by a rapid increase in irrational social behavior—panic is the term used most frequently—or by the perception of people being "stunned" and not being able to respond to emergency or crisis situations. These effects are seen to result in "victims" with severely hampered decision-making

capacity whose long repressed criminal and antisocial tendencies surface. It is assumed that these antisocial traits emerge since traditional social control mechanisms have now lost their effectiveness. In addition, traditional forms of pre-disaster social organizations (families, community organizations, local government) are seen as ineffective since they are now populated with confused victims. The confused victim image suggests that extraordinary measures need to be initiated. Since disaster problems stem from the confusion of their victims and the ineffectiveness of the pre-disaster social structure, the logical policy response is to establish "command" over the chaos and regain "control" over the disorganized, confused victims. This means that outside assistance is necessary to establish authority and generate correct decisions to replace those confused. Therefore, in general, policy directions establish "command and control" and perhaps provide some therapy for "confused victims."

As noted earlier, there is a different view that can be inferred from the research evidence and from careful observation—that of the active survivor. The designation of "active" suggests that "victims" do respond actively to the prospects and impacts of disaster—in making preparations for family members and for others in their community; by giving attention to warnings and to danger; and by seeking out information about risk potential. Such actions cannot be described as "panic." Some community members will make bad decisions, just as they have before the disaster. The preoccupation with possibilities of antisocial behavior shifts attention away from the increase in altruistic behavior and volunteerism, which always emerges after a disaster. We also know that most search and rescue is done by friends and neighbors, not by what are now called "first responders." The problems created by disasters are usually those that existed before: poor land use, unenforced building codes, lack of attention to mitigating community risks, poverty, inadequate medical care, and substandard housing, among others. The best way to understand disaster effects is to know what the community was like prior to the disaster event.

The image of active survivors, rather than confused victims, is important for future research. It means that knowledge, rather than command and control, is more important in reducing the negative consequences of disasters in all types of social structures. Some of the problems created by disasters are of larger magnitude but they can be solved by usual community decision-making. However, many of these problems cannot be solved by a quick fix of technology. The goal should be to understand how people, organizations, and communities can adapt and improve their decision-making and problem-solving skills. Understanding how, cooperatively, they can bring together human and material resources to "solve" the new and different problems is more important than creating artificial authority. These skills can be enhanced within any impacted community so that those communities do not become dependent on outside "assistance."

STRUCTURE OF THE HANDBOOK

It is best to view the organization of the *Handbook of Disaster Research* in terms of a model of a library rather than as a lengthy novel. Since the focus is on disaster research, we have given attention to conceptual issues dealing with the word "disaster" and on methodological issues relating to research on disasters. We include a discussion of Geographic Information Systems as a useful research tool and its implications for future research; of how research is being used in the growing number of courses in emergency management; and an examination of how research is useful in dealing with emergency operations.

Since disasters are not random, equal-probability events, we included several essays on various types of vulnerabilities. There are many losers in disasters but there are also some winners. Many of the selections are centered on the central problem solving unit—the community, which is a universal social form cross-culturally. Some of these discussions are centered on the resources, which communities utilize in problem-solving in disasters. In addition, we look at a series of community processes that are evoked by disasters, including warnings, search and rescue, coordination, and organizational adaptation, as well as dealing with death and injury, and recovery. We then moved to a consideration of nation-states' emergency systems, including those such as Russia's, which has been undergoing significant change. We also look at the relationship between disaster and development, which is of central concern for foreign assistance programs and international financial agencies. We then move to a discussion of new dimensions of research as well as several projections of disasters into the future, in terms of an increasingly urban, diverse, industrialized, and technology connected world, focusing on what Furedi has termed "the growth of a market of fear," or in Perrow's terms, "Disasters Evermore."

It should be noted that certain contributions that we originally anticipated could not be realized. First, we have no extensive discussion focusing on international disaster assistance programs and the more recent and important efforts of the World Bank. We have no extensive discussion of what might be called the potential for mega-disasters in a world where massive urban settlements contain an increasing proportion of the world population. We have no extensive discussion of mitigation. We have not given attention to the importance of emergency medical services and to the problem that emerges when disaster agents, such as tsunamis, impact an area where different religious and cultural traditions affect the handling of disaster victims. Unfortunately, some of our good intentions in planning the *Handbook* were not realized. We did ask our contributors to address future research priorities and possibilities in an attempt to generate the beginnings of an agenda for a new generation of disaster researchers.

It is important to note here that the editors do not see disaster research as the study of deviance or of social pathology but as an attempt to understand a variety of types of social systems having to deal with complex and often unexpected problems. Disasters allow the opportunity for social scientists to study human behavior in which adaptation, resilience, and innovation are often more clearly revealed than in "normal" and stable times. The fact that traditional social units such as families, organizations, and communities have grappled with disaster over centuries indicates that "solutions" are possible. This means that problem solving abilities can be improved and disaster research can contribute to that understanding.

Unfortunately, nation-states' disaster planning seldom considers local communities as capable of problem solving and they develop plans suggesting the necessity of instituting social control. Using inept analogies from the past, national planning is often predicated on a model of "enemy" attack and considers local communities as fragile and disorganized. Disaster "victims" are seen as either passive or paralyzed by fear. Based on those assumptions, nation-states often plan to supplement or replace local decision-making, using the rationale of patriotic paternalism.

Certainly, disasters disrupt conventional social routines and structures but to describe this as social chaos is incorrect. Emergencies do not reduce the capacities of individuals to cope but they present new and unexpected problems to solve. It is wise to remember that in the social history of some of the most dynamic world cities are episodes of successful coping with major emergencies - New York, Washington, Chicago, San Francisco, Tokyo, London, Mexico City, Berlin, and many others. Conventional social structures should be seen as the

key resources for problem solving, not as the key location of confusion. Efforts to understand disasters should lead to using the abilities of various social units to more effectively solve the problems, which emergencies create. It has been noted that the conventional Chinese symbol for disaster is a combination of two different characters, one symbolizing "danger" and the other "opportunity." Henceforth, the discussion is focused on opportunity.

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Acknowledgments

Editing a book of this nature is truly an art form. As many artists know, developing a "masterpiece" requires an extensive amount of time, hard work, and, most importantly, patience and perseverance. Even when the work of art is "finished" and displayed in (hopefully) some prominent and inviting place, you reflect on it and wished you had added some supplemental colors, included other images or scenery, or eliminated some of those pastel types of colors. But, alas, the work is done, and with a great deal of pride combined with a great dose of humility and satisfaction, you thank all those who made this project possible. Although the final product is extremely important, it was the process that was essential and made the project worth pursuing. It allowed us to interact with our colleagues, share ideas, learn about new initiatives, and become a bit more familiarized with the work of leading scholars and researchers from a diverse set of disciplines and from a number of countries. Yes, at times, it seemed a long and tedious process, but, at the end, we all became better (or, at least, more informed) social scientists and disaster researchers. We sincerely appreciate the help, collaboration, contributions, and recommendations of all those who made the *Handbook of Disaster Research* possible.

There are always many individuals involved in a project of this magnitude, ranging from the authors of the different chapters included in the *Handbook*, to those who provided very critical and insightful (although not always welcomed) reviews, to those who worked endless hours planning, organizing, and compiling all the information requested by the editors and the publisher. All the authors will make important contributions to the field of disaster research with the chapters that they submitted for inclusion in this *Handbook*. We appreciate your thoughtfulness and your critical perspectives regarding how the different topics included in the diverse chapters of this *Handbook* have evolved, where we are currently in this particular area of study, and the future propositions for the field. We hope that these contributions will serve to expand the disaster field both substantively and methodologically; that they will encourage many researchers to pursue some of the areas of study proposed by many of the authors of this *Handbook*; and will also encourage funding agencies to provide the necessary funds in order to allow them (e.g., researchers) to engage in these research initiatives, many calling for multi- or interdisciplinary and cross-national collaborations.

We are extremely grateful to Pat Young (Coordinator for the Research Collection at the Disaster Research Center) for all her hard work in the development of this *Handbook*. Pat was instrumental in the final (and most difficult) stages of putting the *Handbook* together. She integrated all the chapters, collected all types of information from the authors, edited parts of the *Handbook*, and was very willing and eager to help and contribute to this important endeavor. As is generally the case with these projects, a number of students (both graduate and undergraduate) also played a key role in this process. Students at the Disaster Research Center

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